Interagency Performance Evaluation Task Force (IPET)

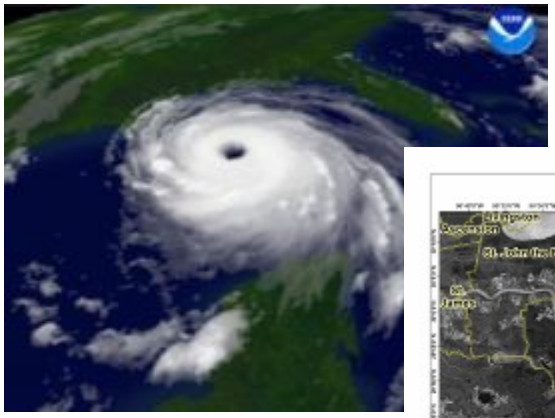
Summary & Status

Dr. Ed Link, Director

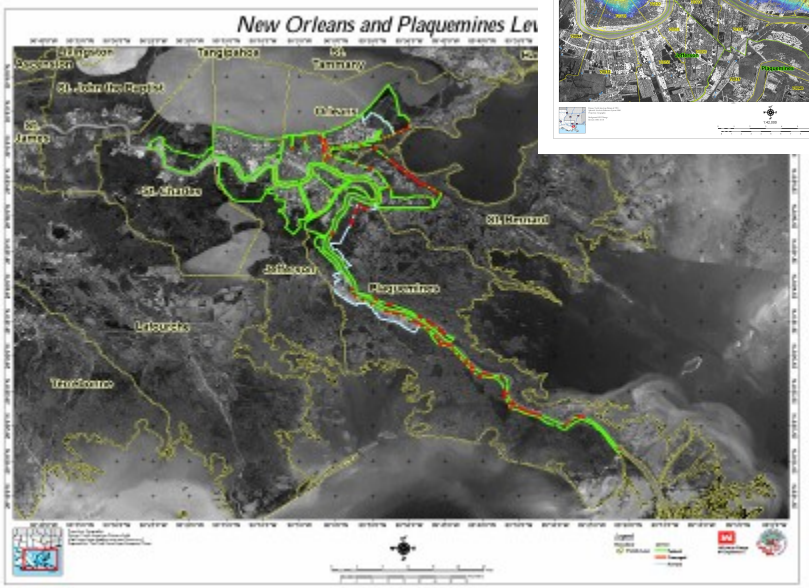
IPET Mission

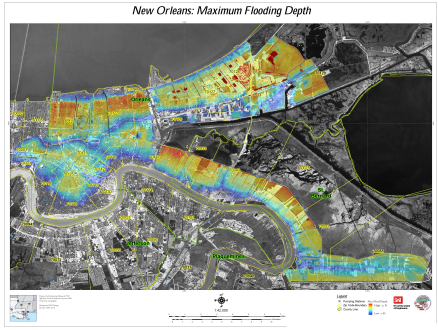
Forensic Analysis and Risk Based System Wide Asse

HAZARD

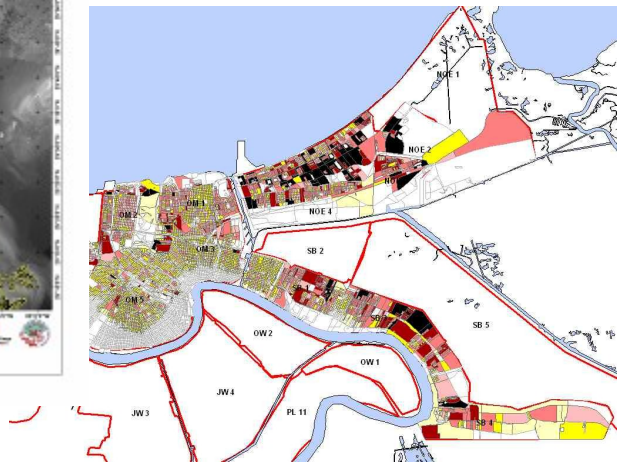


SYSTEM





CONSEQUENCES



Results are “in the Ground”

https://ipet.wes.army.mil **http://www.mhclibrary.co**

IPET Final Report

Volume	Status
VOL I Executive Summary And Overview	DOJ for Release of Interim Final 31 Jan
VOL II Geodetic Vertical and Water Level Datums	DOJ for Release of Final 31 Jan
VOL III The Hurricane Protection System	Draft Final in edit, Release expected by 15 Feb
VOL IV The Storm	Draft Final in edit, Release expected by 15 Feb
VOL V The Performance - Levees and Floodwalls	Draft Final in edit, Release expected by end Feb
VOL VI The Performance – Drainage and Pumping	Draft Final being completed, Release expected by end of Feb
VOL VII – The Consequences	DoJ for release of Final by 31 Jan
VOL VIII – The Risk and Reliability Analysis	Draft Final being prepared, initial release by early Mar, final by Jun
VOL IX - Appendices	DOJ for Release by 31 Jan

US Army Corps of Engineers©

Performance Evaluation of the New Orlea
Southeast Louisiana Hurricane Protection

Final Report of the Interagency Performance Evaluation Task Force

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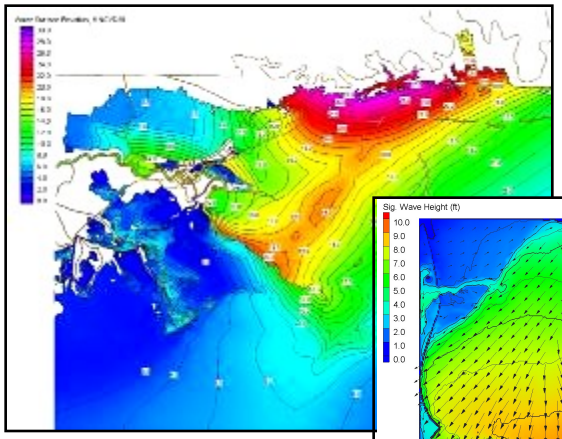
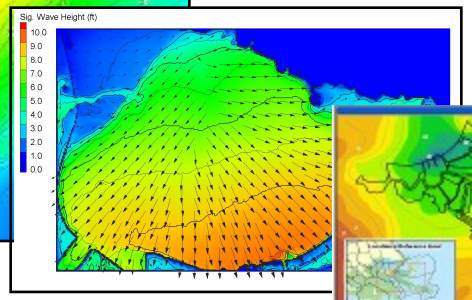
The Hazard

System Wide Assessment Forensic Analysis

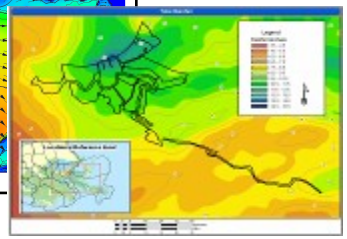
Surge



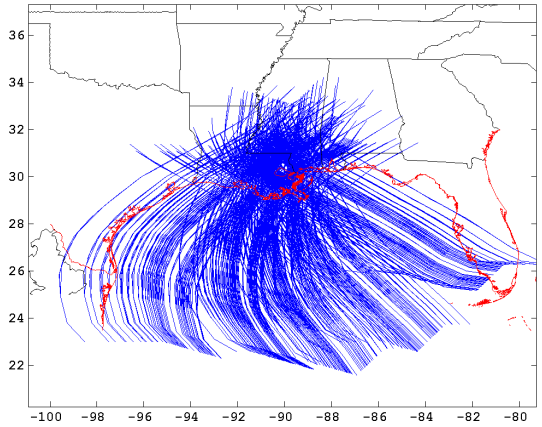
Waves



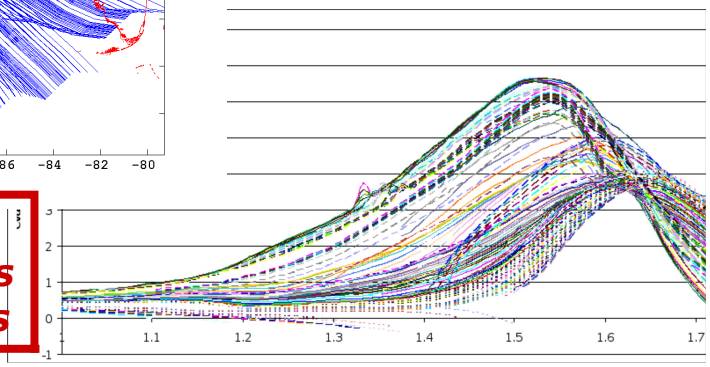
Rain



Katrina Time History of Forces by Locale



Central Pressure
Max Winds
Radius to max winds
Speed
Track

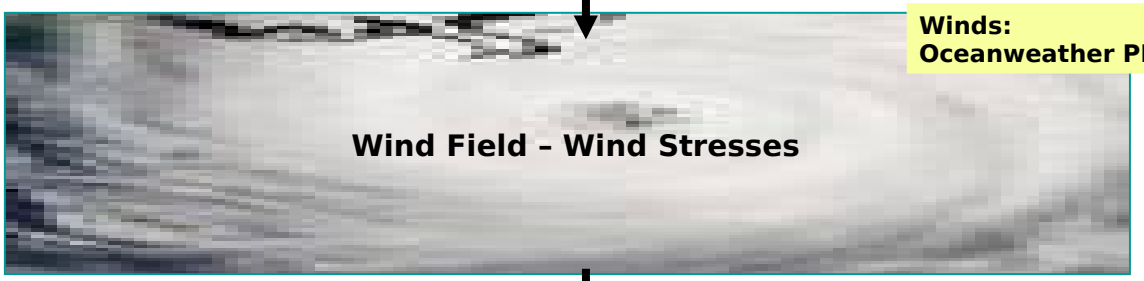


Issues:
Climate Dynamics
Coastal Dynamics

Probability of Surge and Wave Levels by Locale

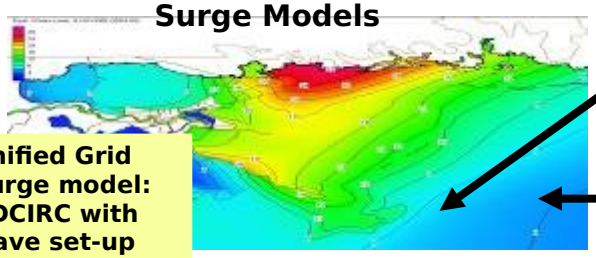
Joint Probability Method – Optimum Sa

Probability Characteristics for Set of PBL Parameters and Tracks
(including potential climate variability)



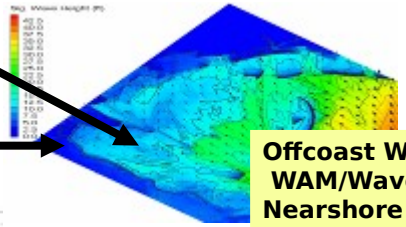
Winds: Oceanweather PBL

Surge Models



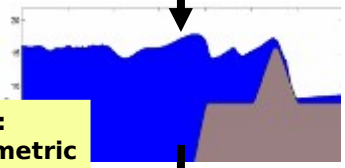
Unified Grid Surge model: ADCIRC with wave set-up (version 46.50)

Wave Models



Coupling

Offcoast Waves: WAM/Wavewatch
Nearshore Waves: STWAVE/SWAN



Local Scale Waves: Boussinesq - Parametric

Water Levels, Overtopping, Loads on Structures, etc.

Integration of JPM Probabilities for Inundation Threat

Plus effects on levees due to waves

NOAA chart with storms versus intensity only

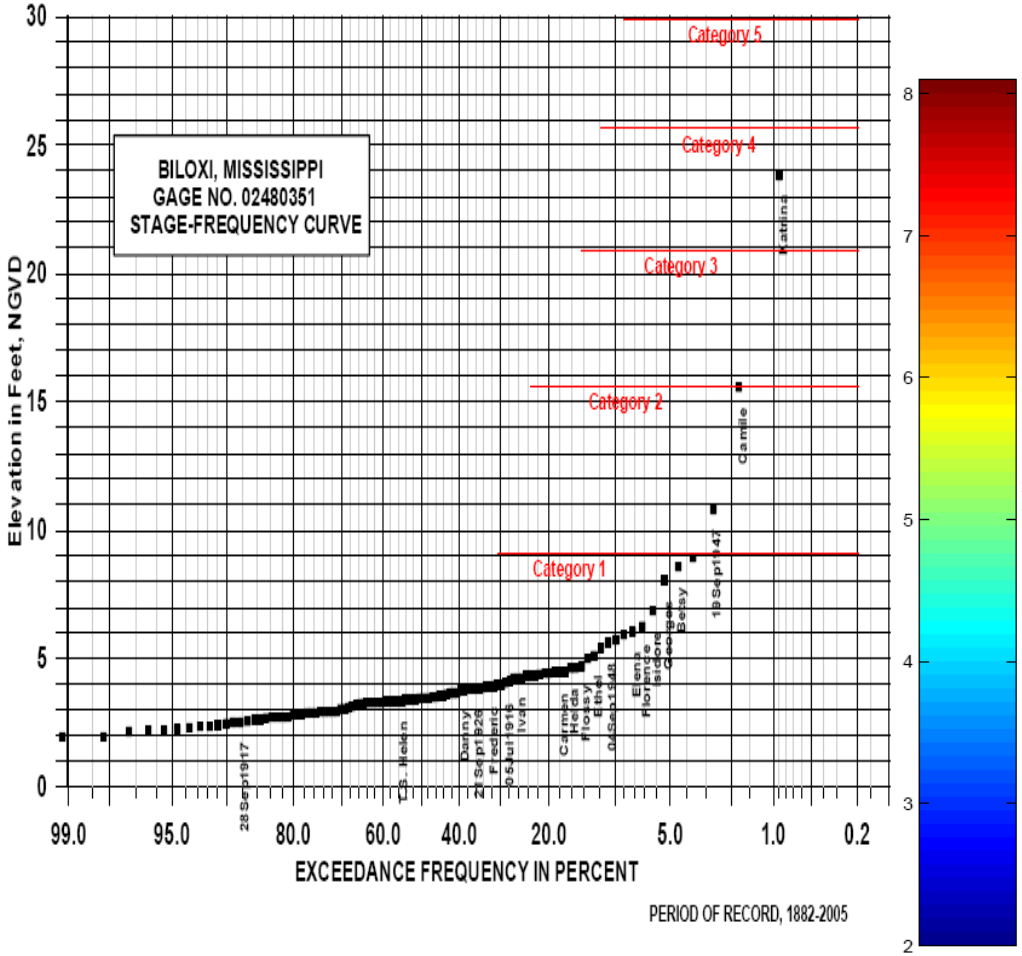
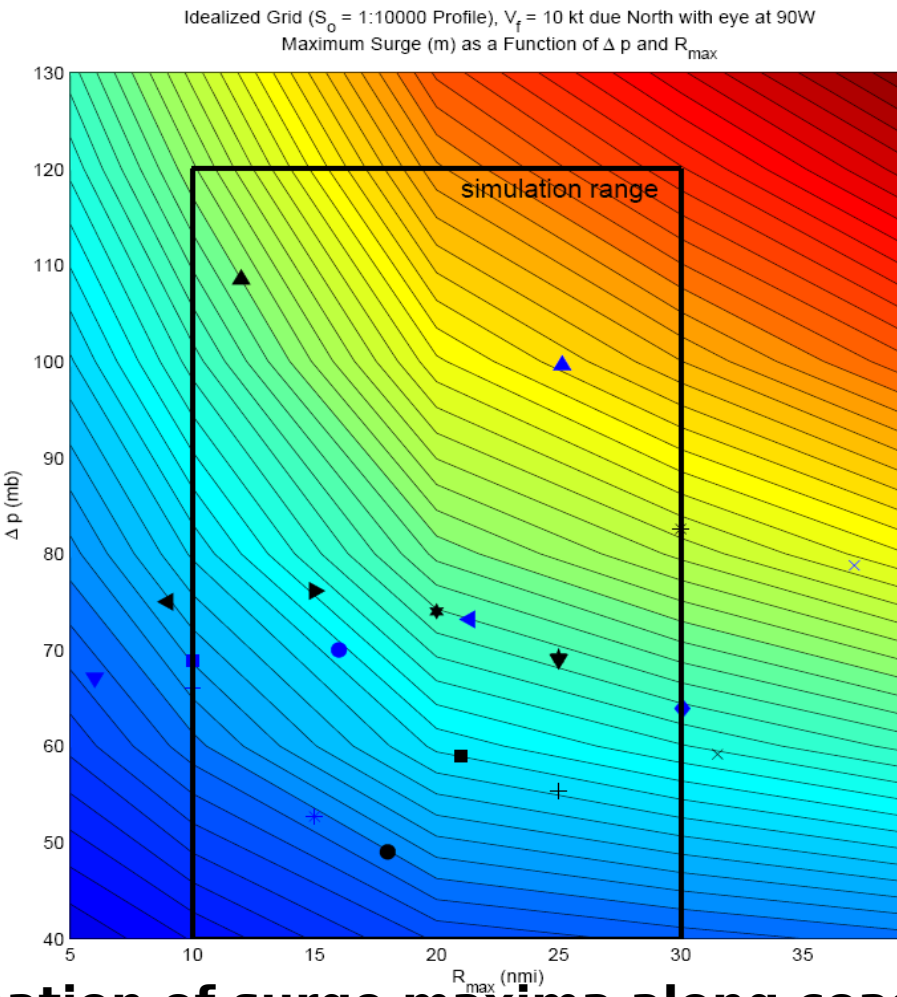
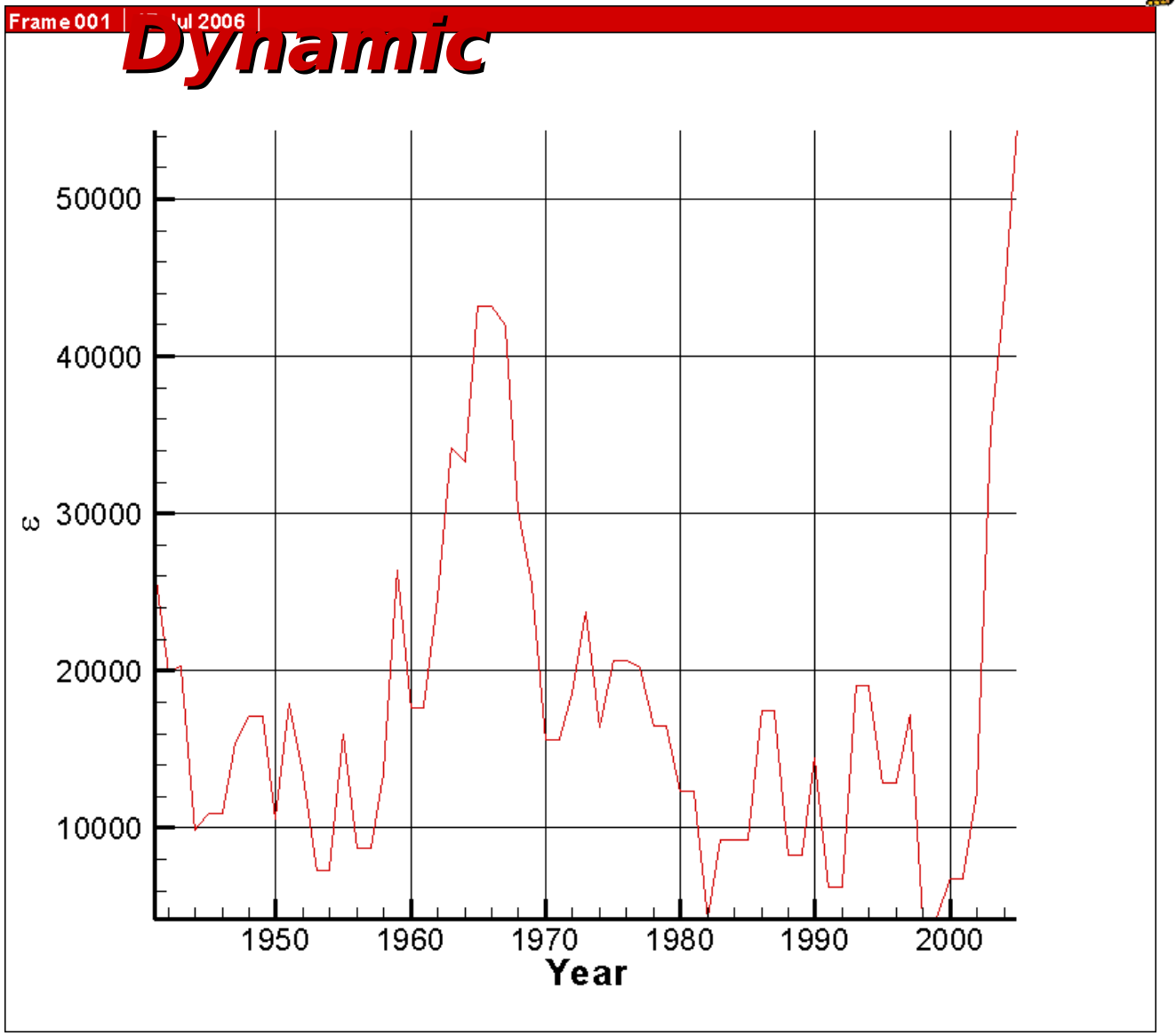


Chart from ADCIRC simulations showing that both intensity and size affect surges at the coast


Idealized Grid (S_o = 1:10000 Profile), V_f = 10 kt due North with eye at 90W
Maximum Surge (m) as a Function of Δ p and R_{max}
simulation range
Δ p (mb)
R_{max} (nmi)

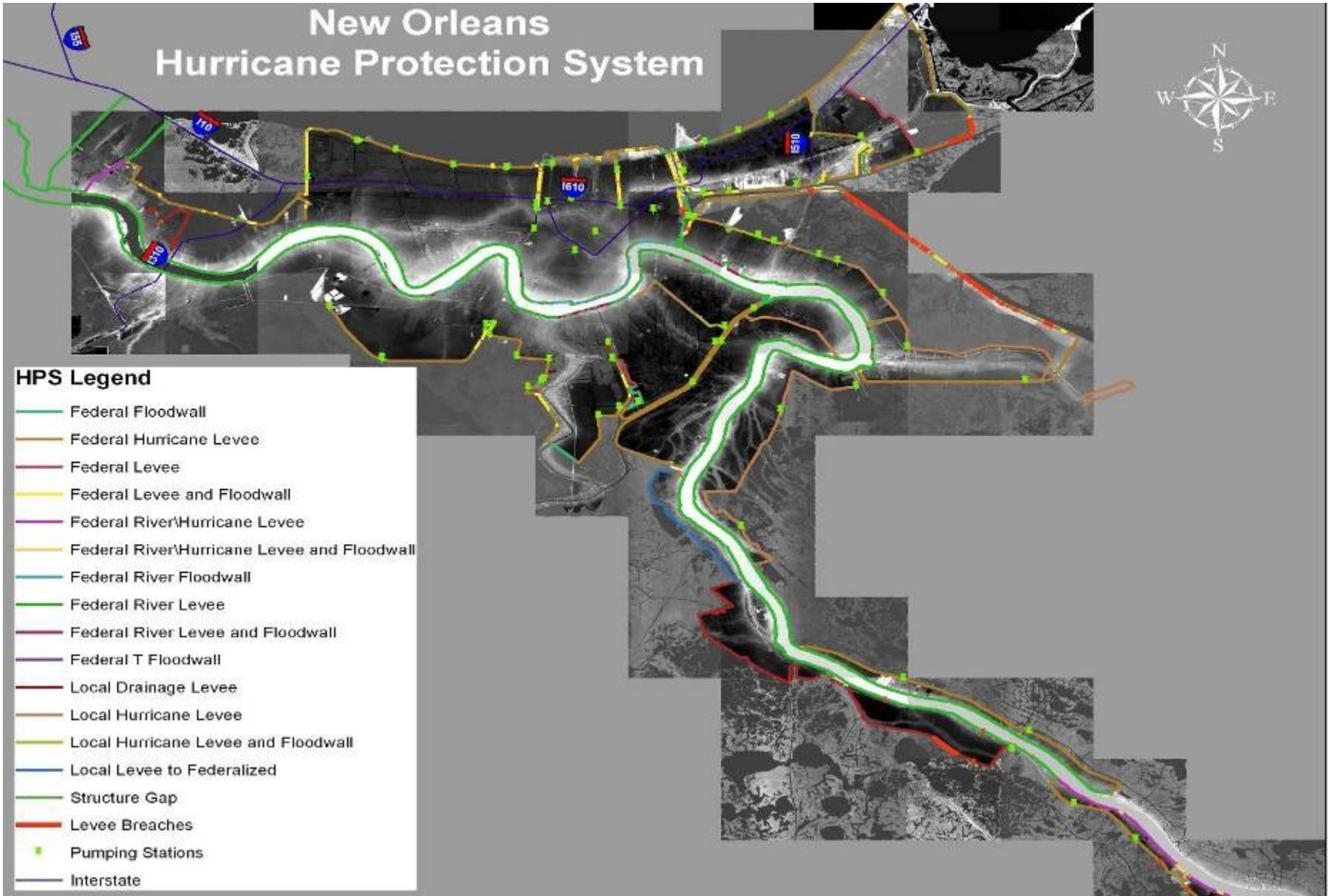
The 2 primary dimensions for estimation of surge maxima along coas
Storm Intensity and Storm Size. Katrina is about a 400-year storm
About a 90-year storm in their areas of maximum effect

The Hazard is Dynamic



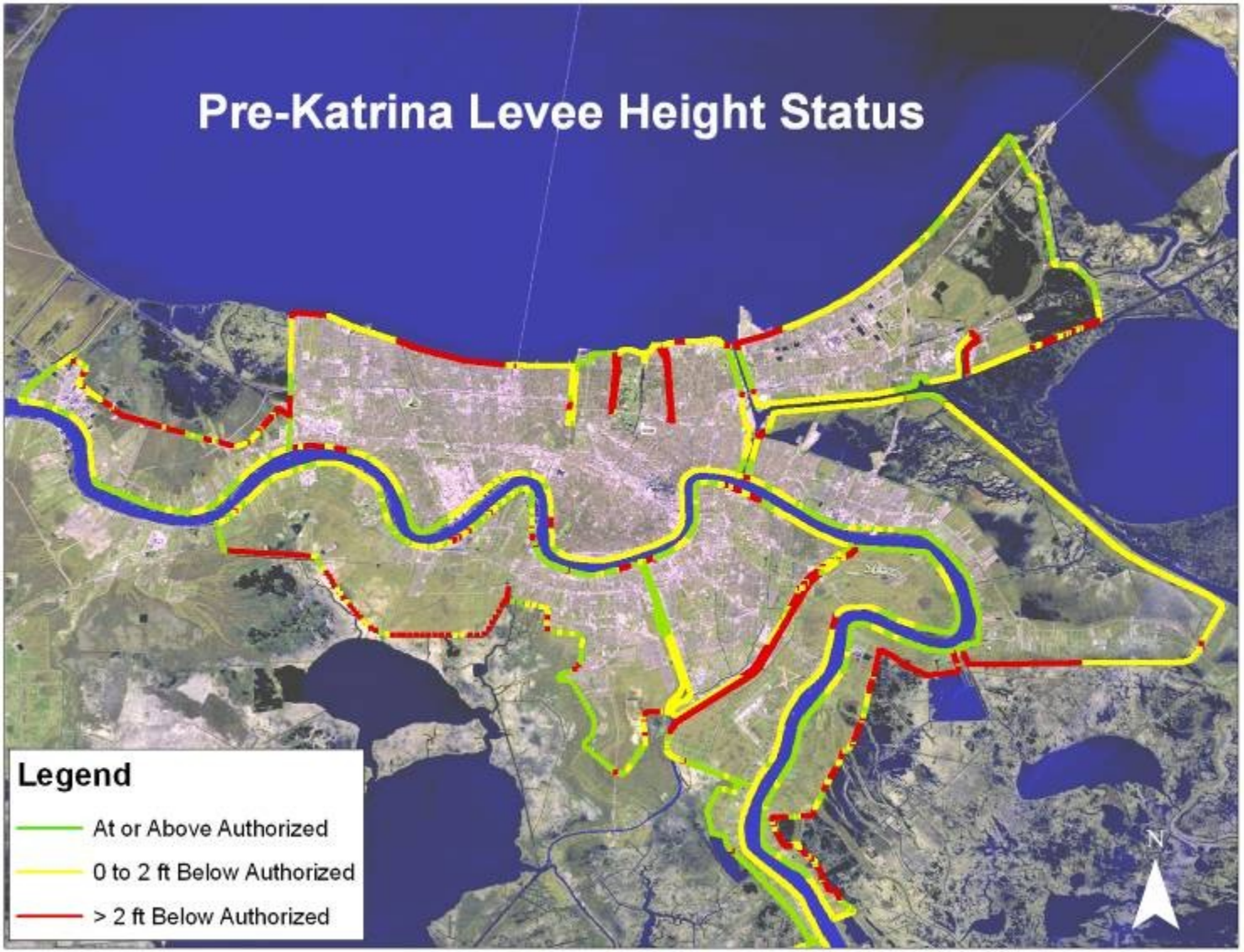
Plot of estimated cumulative kinetic energy for all storms: 1941-2005.

The System

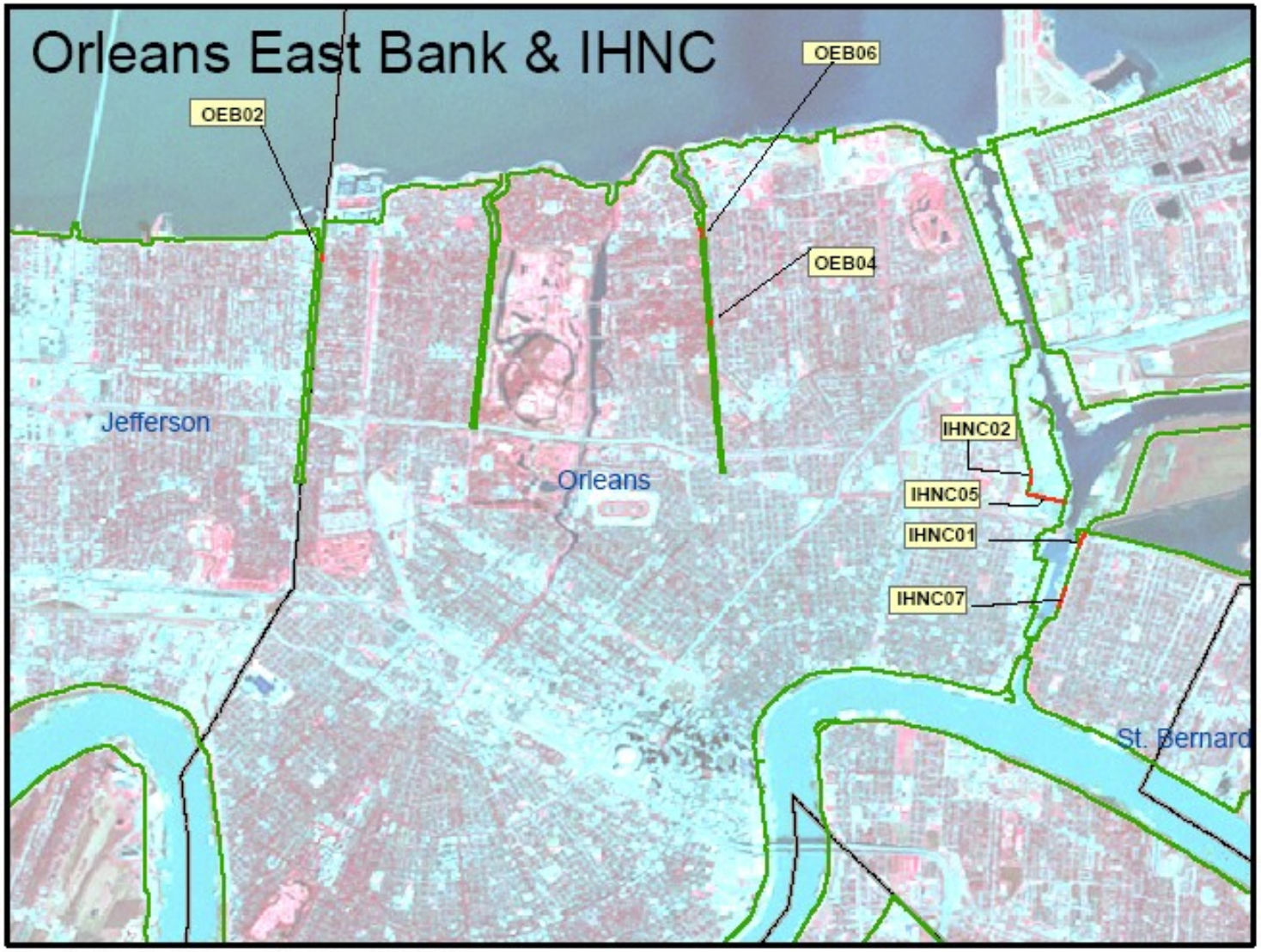

New Orleans
Hurricane Protection System
HPS Legend
Federal Floodwall
Federal Hurricane Levee
Federal Levee
Federal Levee and Floodwall
Federal River\Hurricane Levee
Federal River\Hurricane Levee and Floodwall
Federal River Floodwall
Federal River Levee
Federal River Levee and Floodwall
Federal T Floodwall
Local Drainage Levee
Local Hurricane Levee
Local Hurricane Levee and Floodwall
Local Levee to Federalized
Structure Gap
Levee Breaches
Pumping Stations
Interstate
I610
I10
I59
I55
N
W
E
S

Distribution of Types of Structures

Pre-Katrina vs Authorized Elevations

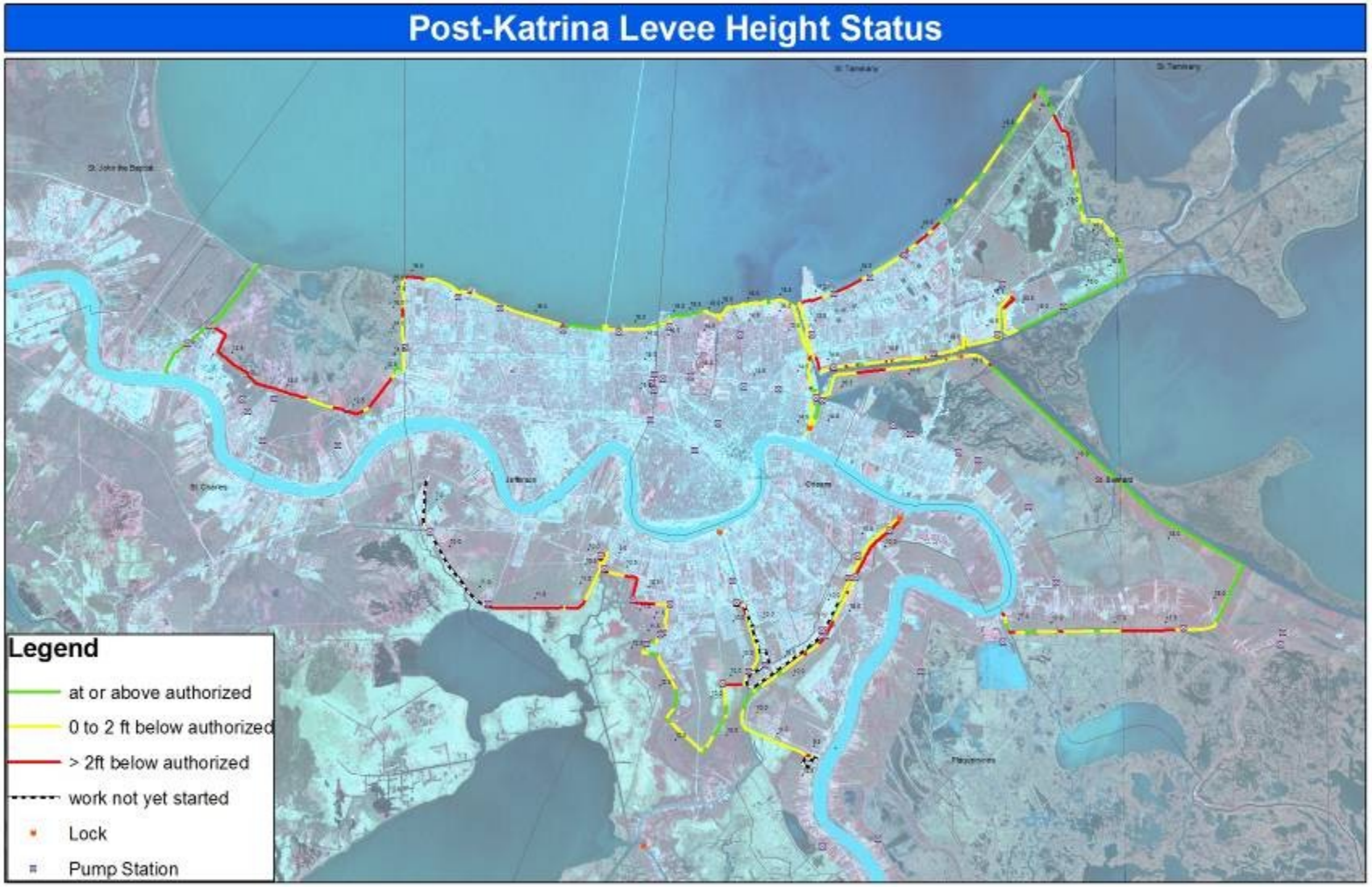


Breach Sites and Characterization



Breach sites in Orleans East Bank & IHNC

Post Katrina vs Authorized Elevation



System Performance

System Wide Assessment Forensic Analysis